

FORM PTO-1390
(REV. 11-2000)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371

PPD 50341

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

09/913856

INTERNATIONAL APPLICATION NO.

PCT/GB00/00249

INTERNATIONAL FILING DATE

JANUARY 28, 2000

PRIORITY DATE CLAIMED

FEBRUARY 22, 1999

TITLE OF INVENTION

AGROCHEMICAL FORMULATION

APPLICANT(S) FOR DO/EO/US

BEAN and CUTLER

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☒ is attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ has been communicated by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
 - a. ☐ is attached hereto.
 - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ have been communicated by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11 to 20 below concern document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
14. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. ☒ Other items or information:

RETURN POSTCARD

| | | | | | |
|--|--|---|--|---|--|
| U.S. APPLICATION NO (if known, see 37 CFR 1.5) 09/913856 | | INTERNATIONAL APPLICATION NO PCT/GB00/00249 | | ATTORNEY'S DOCKET NUMBER 109846-- TBA | |
|--|--|---|--|---|--|

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|--|------------------|--------------|------------------|----------------------------------|----|
| 21. <input checked="" type="checkbox"/> The following fees are submitted: BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)): Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO. \$1000.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$860.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$710.00 International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$690.00 International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) \$100.00 ENTER APPROPRIATE BASIC FEE AMOUNT = | | | | CALCULATIONS PTO USE ONLY | |
| | | | | \$ 860.00 | |
| Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)). | | | | \$ | |
| CLAIMS | NUMBER FILED | NUMBER EXTRA | RATE | \$ | |
| Total claims | 16 - 20 = | 0 | x \$18.00 | \$ | |
| Independent claims | 1 - 3 = | 0 | x \$80.00 | \$ | |
| MULTIPLE DEPENDENT CLAIM(S) (if applicable) | | | | + \$270.00 | |
| TOTAL OF ABOVE CALCULATIONS = | | | | \$ 860.00 | |
| <input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2. | | | | \$ | |
| SUBTOTAL = | | | | \$ 860.00 | |
| Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)). | | | | \$ | |
| TOTAL NATIONAL FEE = | | | | \$ 860.00 | |
| Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property + | | | | \$ | |
| TOTAL FEES ENCLOSED = | | | | \$ | |
| | | | | Amount to be refunded: | \$ |
| | | | | charged: | \$ |

a. ☐ A check in the amount of \$ _____ to cover the above fees is enclosed.

b. ☒ Please charge my Deposit Account No. **08-0219** in the amount of \$ **860.00** to cover the above fees.
A duplicate copy of this sheet is enclosed.

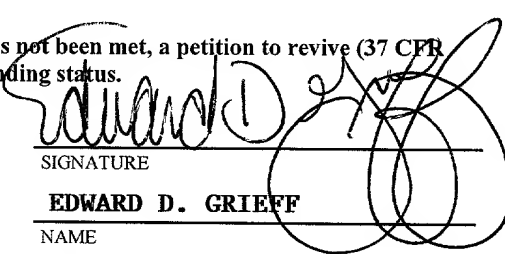
c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any
overpayment to Deposit Account No. **08-0219**. A duplicate copy of this sheet is enclosed.

d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card
information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR
1.137 (a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

**EDWARD D. GRIEFF, ESQ.
HALE AND DORR LLP
THE WILLARD OFFICE BUILDING
1455 PENNSYLVANIA AVE., N.W.
WASHINGTON, DC 20004**


 SIGNATURE
EDWARD D. GRIEFF
 NAME
38,898
 REGISTRATION NUMBER

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: **Bean et al**

International Application No. **PCT/GB00/00249**

International Filing Date: **28 January 2000**

For: **Agrochemical Formulation**

Docket No: PPD 50341/UST

Assistant Commissioner of Patents
Washington, DC 20231

Preliminary Amendment

Prior to consideration of the above application on the merits, please enter the following preliminary amendment without prejudice.

IN THE CLAIMS:

The pending claims, after entry of the preliminary amendment, are set forth in Appendix 1. The amendments to the claims are set forth in Appendix 2.

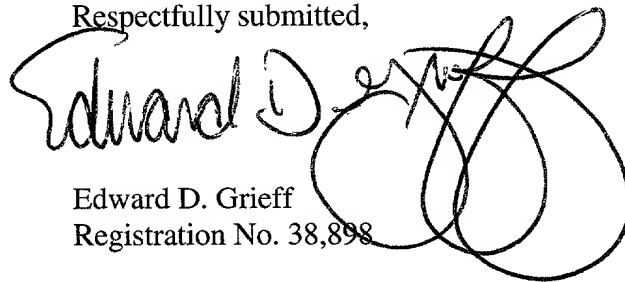
IN THE SPECIFICATION:

A clean copy of the new paragraph added to the specification at page 1, line 2 is set forth in Appendix 3. A marked-up copy of the specification at page 1, line 2 is set forth in Appendix 4.

Remarks

Claims 1-16 have been editorially amended and remain supported by the originally filed claims. The specification has been amended to refer to the priority applications. No issues of new matter should arise and entry of the preliminary amendment is respectfully requested.

Respectfully submitted,



Edward D. Grieff
Registration No. 38,898

Date: August 20, 2001
Hale and Dorr LLP
1455 Pennsylvania Avenue, NW
Washington, DC 20004
Phone: 202-942-8453

APPENDIX 1 - Pending Claims

1. (Amended) An aqueous agrochemical concentrate formulation comprising

- a) an agrochemical electrolyte,
- b) a water-insoluble agrochemical system,
- c) an alkyglycoside, and
- d) a co-surfactant which interacts with the alkyglycoside to form a structured aqueous system.

2. (Amended) The formulation according to claim 1, wherein the co-surfactant (d) is

- i) a linear or branched chain aliphatic or aromatic alcohol,
- ii) an alcohol alkoxylate or ester alkoxylate or alkyl phenol alkoxylate,
- iii) a glyceryl alkyl or alkenyl ester, or
- iv) a sorbitan alkyl or alkenyl ester.

3. (Amended) The formulation according to claim 2 wherein:

the linear or branched chain alcohol (i) is a primary or secondary, linear or branched alkyl or alkenyl alcohol containing from 5 to 20 carbon atoms or is an alkyl- or alkenyl-substituted aromatic alcohol containing from 5 to 20 linear or branched alkyl carbon atoms; or

wherein the alcohol or ester or alkyl phenol alkoxylate (ii) is an alkoxylated C₈-C₂₂ primary or secondary, linear or branched chain alcohol, an alkoxylated C₈-C₂₂ alkyl phenol or an alkoxylated C₈-C₂₂ carboxylic acid each containing from 1-3 C₂-C₄ alkoxy groups; or

wherein the glyceryl alkyl or alkenyl ester (iii) is a monoester of a C₈-C₂₂ carboxylic acid with glycerol; or

wherein the sorbitan alkyl or alkenyl ester (iv) is a sorbitan ester having from 8 to 22 carbon atoms in the ester group.

4. (Amended) The formulation according to claim 3, wherein the co-surfactant is pentanol, hexanol, octanol, octan-2-ol, decanol and their branched chain or mixture of branched chain equivalents, oleyl alcohol, 2-ethyl-1-hexanol, an ethoxylated lauryl alcohol having a mean

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ethylene oxide content of 2, an ethoxylated octyl phenol having a mean degree of ethoxylation of 3, glyceryl monolaurate and sorbitan monolaurate.

5. (Amended) The formulation according to claim 1, wherein the agrochemical electrolyte is selected from salts of glyphosate, fomesafen, glufosinate, paraquat and bentazone or is ammonium sulphate.

6. (Amended) The formulation according to claim 1, wherein the water-insoluble agrochemical system comprises an agrochemical active ingredient.

7. (Amended) The formulation according to claim 6, wherein the water-insoluble system is a water-insoluble herbicide.

8. (Amended) The formulation according to claim 7, wherein the water-insoluble herbicide is diuron, linuron, sulfometuron, chlorsulphuron, metsulfuron, chlorimuron, atrazine or simazine.

9. (Amended) The formulation according to claim 1, further comprising a cationic, anionic or amphoteric surfactant.

10. (Amended) The formulation according to claim 9, wherein the cationic surfactant comprises at least one linear or branched long chain alkyl or alkenyl or alkyl aryl substituent containing from 8 to 20 alkyl or alkenyl carbon atoms and a mean ethylene oxide content of from 0 to 20 which is an optionally ethoxylated amine, quaternary ammonium salt or amine oxide; or

wherein the anionic surfactant comprises at least one long chain alkyl or alkenyl substituent containing from 8 to 20 carbon atoms which is an alkyl sulphate, alkyl carboxylate, alkyl sulphosuccinate, alkyl phosphate or alkylbenzene sulphonate and derivatives thereof.

11. (Amended) The formulation according to claim 1, wherein the water-insoluble agrochemical system is present in a proportion of from 150 parts by weight of agrochemical electrolyte to 1 part by weight of water-insoluble agrochemical system to 1 part by weight of agrochemical electrolyte to 4 parts by weight of water-insoluble agrochemical system.

12. (Amended) The formulation according to claim 1, wherein the proportion of the co-surfactant is from 0.1 parts by weight to 1 part by weight per 1 part by weight of alkylglycoside.

13. (Amended) The formulation according to claim 9, wherein the proportion of cationic, anionic or amphoteric surfactant is from 0 parts by weight to 1 parts by weight cationic, anionic or amphoteric surfactant per 1 part alkylglycoside.

14. (Amended) The formulation according to claim 9, wherein the proportion by weight of the total of the alkylglycoside, the cosurfactant and cationic, anionic or amphoteric surfactant to the agrochemical electrolyte is from 4:1 to 1:10.

15. (Amended) A process for severely damaging or killing unwanted plants comprising applying to the plants a herbicidally effective amount of the formulation according to claim 1, wherein the agrochemical electrolyte is a herbicide.

16. (Amended) A process for the preparation of the formulation according to claim 1 which comprises bringing into admixture an aqueous dispersion of

- a) an agrochemical electrolyte,
- b) a water-insoluble agrochemical system,
- c) an alkylglycoside, and
- e) optionally an ionic surfactant,

and thereafter adding

- d) a co-surfactant which interacts with the alkylglycoside to form a structured aqueous system.

APPENDIX 2 - Amendments to Claims

1. (Amended) An aqueous agrochemical concentrate formulation comprising

- a) an agrochemical electrolyte,
- b) a water-insoluble agrochemical system,
- c) an alkyglycoside, and
- d) a co-surfactant which interacts with the alkyglycoside to form a structured aqueous system.

2. (Amended) The formulation [A concentrate] according to claim 1, [or claim 2]

wherein the co-surfactant (d) is

- i) a linear or branched chain aliphatic or aromatic alcohol, [or]
- ii) an alcohol alkoxylate or ester alkoxylate or alkyl phenol alkoxylate,
- iii) a glyceryl alkyl or alkenyl ester, or
- iv) [(iv)] a sorbitan alkyl or alkenyl ester.

3. (Amended) The formulation [A concentrate] according to claim 2 wherein:

the linear or branched chain alcohol (i) is a primary or secondary, linear or branched alkyl or alkenyl alcohol containing from 5 to 20 carbon atoms or is [a] an alkyl- or alkenyl-substituted aromatic alcohol containing from 5 to 20 linear or branched alkyl carbon atoms; or

wherein the alcohol or ester or alkyl phenol alkoxylate (ii) is an alkoxylated C₈-C₂₂ primary or secondary, linear or branched chain alcohol, an alkoxylated C₈-C₂₂ alkyl phenol or an alkoxylated C₈-C₂₂ carboxylic acid each containing from 1-3 C₂-C₄ alkoxy groups; or

wherein the glyceryl alkyl or alkenyl ester (iii) is a monoester of a C₈-C₂₂ carboxylic acid with glycerol; or

wherein the sorbitan alkyl or alkenyl ester (iv) is a sorbitan ester having from 8 to 22 carbon atoms in the ester group.

4. (Amended) The formulation [A composition] according to claim 3, wherein the co-surfactant is pentanol, hexanol, octanol, octan-2-ol, decanol and their branched chain or mixture of branched chain equivalents, oleyl alcohol, 2-ethyl-1-hexanol, an ethoxylated lauryl

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alcohol having a mean ethylene oxide content of 2, an ethoxylated octyl phenol having a mean degree of ethoxylation of 3, glyceryl monolaurate and sorbitan monolaurate.

5. (Amended) The formulation [A composition] according to claim 1, [any of the preceding claims] wherein the agrochemical electrolyte is selected from salts of glyphosate, fomesafen, glufosinate, paraquat and bentazone or is ammonium sulphate.

6. (Amended) The formulation [A composition] according to claim 1, [any of the preceding claims] wherein the water-insoluble agrochemical system comprises [contains] an agrochemical active ingredient.

7. (Amended) The formulation [A composition] according to claim 6, wherein the water-insoluble system is a water-insoluble herbicide [as herein defined].

8. (Amended) The formulation [A composition] according to claim 7, wherein the water-insoluble herbicide is diuron, linuron, sulfometuron, chlorsulphuron, metsulfuron, chlorimuron, atrazine or simazine.

9. (Amended) The formulation [A concentrate] according to claim 1, further comprising [any of the preceding claims wherein the composition additionally contains an ionic surfactant which is] a cationic, anionic or amphoteric surfactant.

10. (Amended) The formulation [A concentrate] according to claim 9, wherein the [composition additionally contains a] cationic surfactant comprises [having] at least one linear or branched long chain alkyl or alkenyl or alkyl aryl substituent containing from 8 to 20 alkyl or alkenyl carbon atoms and a mean ethylene oxide content of from 0 to 20 which is an optionally ethoxylated amine, quaternary ammonium salt or amine oxide; or

wherein the [composition additionally contains an] anionic surfactant comprises [having] at least one long chain alkyl or alkenyl substituent containing from 8 to 20 carbon atoms which is an alkyl sulphate, alkyl carboxylate, alkyl sulposuccinate, alkyl phosphate or alkylbenzene sulphonate and derivatives thereof.

11. (Amended) The formulation [A concentrate] according to [any of the preceding claims] claim 1, wherein the water-insoluble agrochemical system is present in a proportion of from 150 parts by weight of agrochemical electrolyte to 1 part by weight of water-

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insoluble agrochemical system to 1 part by weight of agrochemical electrolyte to 4 parts by weight of water-insoluble agrochemical system.

12. (Amended) The formulation [A concentrate] according to [any of the preceding claims] claim 1, wherein the proportion of the co-surfactant is from 0.1 parts by weight to 1 part by weight per 1 part by weight of alkylglycoside.

13. (Amended) The formulation [A concentrate] according to claim 9, wherein the proportion of [additional ionic] cationic, anionic or amphoteric surfactant is from 0 parts by weight to 1 parts by weight [ionic] cationic, anionic or amphoteric surfactant per 1 part alkylglycoside.

14. (Amended) The formulation [A concentrate] according to [any of the preceding claims] claim 9, wherein the proportion by weight of the total of the alkylglycoside, the cosurfactant and [additional ionic] cationic, anionic or amphoteric surfactant [, if used,] to the agrochemical electrolyte is from 4:1 to 1:10.

15. (Amended) A process for severely damaging or killing unwanted plants comprising [which comprises] applying to the plants a herbicidally effective amount of [a composition] the formulation according to claim 1, [any of the preceding claims] wherein the agrochemical electrolyte is a herbicide.

16. (Amended) A process for the preparation of the formulation [a composition] according to claim 1 [any of claims 1 to 14] which comprises bringing into admixture an aqueous dispersion of

- a) an agrochemical electrolyte,
- b) a water-insoluble agrochemical system, [and]
- c) an alkylglycoside, and [optionally]
- e) [(e)] optionally an ionic surfactant,

and thereafter adding

- d) a co-surfactant which interacts with the alkylglycoside to form a structured aqueous system.

Appendix 3 - Clean Copy of Specification

The following has been added to the specification at page 1, line 2:

Related Applications

This application is a § 371 of PCT/GB00/00249 filed 28 January 2000, which claims priority to United Kingdom Application No. 9904012.3 filed 22 February 1999.

Appendix 4 - Amendments to Specification

Please add the following to the specification at page 1, line 2:

Related Applications

This application is a § 371 of PCT/GB00/00249 filed 28 January 2000, which claims priority to United Kingdom Application No. 9904012.3 filed 22 February 1999.

AGROCHEMICAL FORMULATION

The present invention relates to agrochemical formulations and in particular to aqueous formulations containing an agrochemical electrolyte and a suspended system.

5 It may often be desirable to combine different agrochemicals to provide a single formulation taking advantage of the additive properties of each separate agrochemical and optionally an adjuvant or combination of adjuvants that provide optimum biological performance. In commercial practice it is often desired to minimise transportation and storage costs by using a formulation in which the concentration of the active agrochemical(s)
10 in the formulation is as high as is practicable and in which any desired adjuvants are "built-in" to the formulation as opposed to being separately tank-mixed. The higher the concentration of the active agrochemical(s) and its associated adjuvants however, the greater is the probability that the stability of the formulation may be disturbed and one or more component separates out. In general, the separation of a component from an agrochemical is highly undesirable, particularly when the formulation is sold in bulk containers. In these
15 circumstances it is virtually impossible to re-homogenise the formulation and to achieve even distribution of the components on dilution and spraying. Furthermore, the formulation must be stable in respect of storage for prolonged periods in both hot and cold climates. These factors all present formidable problems to the formulator. The problems may be exacerbated still further if the formulation contains a water-soluble agrochemical electrolyte and a second
20 agrochemical system which is water-insoluble. We have found that conventional anti-settling systems used to suspend water-insoluble agrochemicals, for example water-swella-ble clay suspending systems, may be rendered ineffective in the presence of a second agrochemical which is an electrolyte. Thus for example if a salt of glyphosate (a water-
25 soluble agrochemical electrolyte) is added to an aqueous system in which a dispersion of the water-insoluble herbicide diuron is stabilised by a water-swella-ble clay, the dispersion may well be de-stabilised such that the diuron settles out of the formulation.

We have now found that it is possible to provide a stable agrochemical aqueous concentrate containing (i) a water-soluble agrochemical electrolyte (ii) a water-insoluble
30 agrochemical system and (iii) a structuring system in which the compatibility problems of conventional suspending systems are overcome and that also offers formulation processing advantages.

Thus according to the present invention there is provided an aqueous agrochemical concentrate formulation comprising

- a) an agrochemical electrolyte
- b) a water-insoluble agrochemical system
- 5 c) an alkylglycoside
- d) a co-surfactant which interacts with the alkylglycoside to form a structured aqueous system.

Whilst the scope of the present invention is not limited by any one particular theory as to the function of the components of the formulation, it is believed that the components, 10 (and in particular the alkyl glycoside and the co-surfactant) interact to provide a structured aqueous system which acts to suspend the water-insoluble aqueous system. It is a particular advantage of the formulation of the present invention that the alkylglycoside not only provides one component of the suspending system but also acts as an adjuvant enhancing the biological activity of the agrochemical active ingredient. This is a significant advantage not 15 only as a cost saving, but also because each additional component which has to be "built-in" to the formulation increases the stability problems. Thus having one single component, the alkylglycoside, which provides the radically different functions of a suspending agent and a biological activity enhancing adjuvant is a major and unexpected advance.

As examples of the co-surfactant which interacts with the alkylglycoside to form a 20 structured aqueous system there may be mentioned compounds having a hydrophobic group in combination with a relatively small hydrophilic group for example:

- i) a linear or branched chain aliphatic or aromatic alcohol or
- ii) an alcohol alkoxylate or ester alkoxylate or alkyl phenol alkoxylate or
- iii) a glyceryl alkyl or alkenyl ester or
- 25 (iv) a sorbitan alkyl or alkenyl ester.

As used herein, the term alkyl, includes a linear or branched chain alkyl group and the term alkyl alcohol includes a linear or branched primary, secondary or tertiary alcohol. A linear or branched primary or secondary alkyl alcohol is generally preferred. As used herein, the term alkenyl, includes a linear or branched alkenyl group and the term alkenyl alcohol 30 includes a linear or branched primary, secondary or tertiary alcohol. A linear or branched primary or secondary alkenyl alcohol is generally preferred.

The linear or branched chain alcohol (i) is preferably a primary or secondary, linear or branched alkyl or alkenyl alcohol containing from 5 to 20 carbon atoms or is an alkyl- or alkenyl- substituted aromatic alcohol containing from 5 to 20 alkyl linear or branched carbon atoms, for example an alkylphenol containing from 5 to 20 alkyl carbon atoms. More preferably the alcohol is an alkyl alcohol containing from 5 to 12 carbon atoms or an alkenyl alcohol containing about 18 carbon atoms. As specific examples of suitable alcohols there may be mentioned pentanol, hexanol, octanol, octan-2-ol, decanol and their branched chain or mixture of branched chain equivalents and oleyl alcohol. As a specific example of a branched chain alcohol there may be mentioned 2-ethyl-1-hexanol. Although it is believed that the structuring of the aqueous phase is more than a mere viscosity effect, we have found that the viscosity of the formulation depends on the choice of alcohol. In general an excessively viscous formulation is less commercially desirable since it can be more difficult to handle a viscous formulation. We have found in particular that a branched alcohol such as 2-ethylhexanol gives effective dispersion through structuring of the aqueous phase whilst providing a relatively low-viscosity formulation even at low ambient temperatures. Octanol is a readily available and effective co-surfactant.

The alcohol, ester or alkyl phenol alkoxylate (co-surfactant (ii)) preferably has an alkoxide content of from 1 to 5, and more preferably from 1 to 3 C₂-C₄ alkoxy groups. The co-surfactant (ii) is preferably an alkoxylated C₈-C₂₂ alcohol, an alkoxylated C₈-C₂₂ alkyl phenol or an alkoxylated C₈-C₂₂ carboxylic acid each containing from 1-3 ethoxy groups. A suitable example is SYNPERONIC L2 which is based on lauryl alcohol with a mean ethylene oxide content of 2. A suitable example of the alkyl phenol alkoxylate is SYNPERONIC OP3 which is an ethoxylated octyl phenol with a mean degree of ethoxylation of 3.

As used herein (both generally and with specific reference to the alcohol or ester or alkyl phenol alkoxylate (ii)), the term "alkoxylated" includes both those compounds in which the alkoxy chain terminates in a hydroxyl group and those in which the alkoxy chain terminates in an alkyl group, such as a methyl group. Preferred alkoxy groups are ethoxy or propoxy, and a mixture of alkoxy groups, for example a mixture of ethoxy and propoxy groups, may be present in the same alkoxylated molecule if desired.

The glyceryl alkyl or alkenyl ester (co-surfactant (iii)) is preferably a monoester of a $C_8 - C_{22}$ carboxylic acid with glycerol. A suitable example is CITHROL GML which is glyceryl monolaurate.

The sorbitan alkyl or alkenyl ester preferably contains from 8 to 22 carbon atoms in the ester group, an especially suitable sorbitan ester is a sorbitan monolaurate such as that available under the trade name SPAN 20.

The water-soluble agrochemical electrolyte may be an active agrochemical or an agrochemical enhancer such as ammonium sulphate or any other ionic species added to an agrochemical formulation. The term "agrochemical" includes compounds which possess biological activity, for example herbicides, fungicides, nematocides, insecticides (optionally with an insecticide synergist) and plant growth regulators. Suitable agrochemical actives which are agrochemical electrolytes are glyphosate (N-phosphonomethylglycine), which is commonly used in the form of its water-soluble salts such as trimethylsulphonium, isopropylamine, sodium, or ammonium salts, fomesafen which is commonly used in the form of its water-soluble sodium salt, glufosinate which is commonly used in the form of its water-soluble ammonium salt, paraquat dichloride and bentazone which is commonly used in the form of its water-soluble sodium salt. The use of an agrochemical enhancer or other additive which is itself an electrolyte may still further enhance the ionic strength of the composition, thereby increasing the potential stability problems. Thus for example glyphosate salts are commonly formulated or tank-mixed with ammonium sulphate as an activity enhancer, whilst magnesium sulphate may be added to paraquat as a purgative as disclosed for example in EP 0467529.

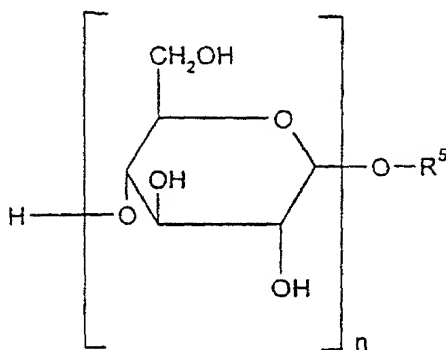
The water-insoluble agrochemical system is preferably a water-insoluble agrochemical active ingredient or a water-insoluble system containing an agrochemical active ingredient. The term "water-insoluble" includes a component which is partially soluble in the aqueous concentrate such that at least a proportion thereof is present as an undissolved solid component. The term "water-insoluble system" includes any system which is required to be suspended in the aqueous formulation and which contains an agrochemical active ingredient regardless of whether that active ingredient is itself soluble or insoluble. Thus an example of a water-insoluble system is a microencapsulated formulation of a water-soluble or -insoluble agrochemical active ingredient. If the water-soluble agrochemical electrolyte is a herbicide such as glyphosate or paraquat, the agrochemical active present in the water-insoluble system

will typically also be a herbicide, for example a water-insoluble herbicide. Typical water-insoluble herbicides include diuron, linuron, sulfometuron, chlorsulphuron, metsulfuron, chlorimuron, atrazine, simazine, quizalofop, butoxydim, nicosulfuron, primisulfuron, bensulfuron, ametryn, pendimethalin, isoproturon, chlortoluron, diflufenican, mesotrione, aclonifen, flurochloridone, oxyfluorfen, isoxaflutole, imazamox and thifensulfuron although the present invention does not depend critically on the nature of the water-insoluble agrochemical or herbicide and many others are published in the literature.

If a water-insoluble agrochemical (such as a herbicide) is used to prepare the aqueous concentrate of the present invention, it is conveniently incorporated in the form of a millbase (a finely divided suspension prepared by milling the solid agrochemical in water). The millbase will typically contain a minor proportion, for example from about 2% to about 10% by weight based on the weight of solid agrochemical, of a dispersing agent to assist dispersion. The dispersing agent used in the millbase may be a cationic, anionic, amphoteric or non-ionic surfactant or polymer. However, as noted below, there are advantages in including a cationic surfactant in the formulation of the present invention and it is may be convenient therefore to use a cationic surfactant as dispersing agent in the millbase.

The alkylglycoside for use in the present invention may be obtained by the reaction of alkanols with glucose or other mono- or di- or polysaccharides. As used herein the term "alkylglycoside" includes an alkylmonoglycoside and an alkylpolyglycoisde. Preferred alkylglycosides for use in the present invention are alkylglucosides obtained by the reaction of glucose with a straight or branched chain alkanol or mixture of alkanols, for example a mixture of alkanols containing 7 to 18, preferably 7 to 16 carbon atoms for example 8 to 10 carbon atoms. The number of glyose groups per alkyl group in the molecule may vary and alkyl mono- or di- or polyglucose or saccharide derivatives are possible. Commercial alkylpolyglucosides usually contain a mixture of derivatives having an average number of

glycose groups per alkyl group. Thus alkylglycosides have the general formula (I)



(I)

wherein n is the degree of polymerisation and is typically within the range from 1 to 3, for example from 1 to 2, and R^5 is a branched or straight chain alkyl group having from 4 to 18 carbon atoms or a mixture of alkyl groups having an average value within the given range.

Typical of alkylglycosides is the product commercially available under the trade names AL2042 (Imperial Chemical Industries PLC and AGRIMUL PG2067 (Henkel Corp) wherein n is an average of 1.7 and R^5 is a mixture of octyl (45%) and decyl (55%), the product commercially available under the trade name AGRIMUL PG2069 (Henkel Corp) wherein n is an average of 1.6 and R^5 is a mixture of nonyl (20%), decyl (40%) and undecyl (40%) and the product commercially available under the trade name BEROL AG6202 (Akzo Nobel) which is 2-ethyl-1-hexylglycoside.

As indicated previously, the agrochemical formulations of the present invention are preferably stable at relatively high ambient temperatures. It has been found that enhanced high temperature stability may be obtained by the inclusion of a minor proportion of an ionic surfactant (component e) and it is believed that the presence of a minor proportion of an ionic surfactant in the formulation increases the amount of structuring that occurs, particularly at high temperatures. The addition of an ionic surfactant therefore offers another advantage, in that lower concentrations of the alkylglycoside and co-surfactant (d) can be used to produce stable formulations.

A wide range of suitable ionic surfactants (component e) will occur to those skilled in the art and those which have been found to enhance stability include cationic, anionic and amphoteric surfactants. Particularly suitable are cationic surfactants which include optionally ethoxylated amines, quaternary ammonium salts and amine oxides having at least one (for example 1, 2, 3 or 4) long chain (linear or branched) alkyl or alkenyl or alkyl aryl

substituent(s) containing from 8 to 20 carbon atoms in the alkyl or alkenyl group and a preferred mean ethylene oxide content of from 0 to 20, even more preferably from 0 to 5. Particularly suitable anionic surfactants include alkyl sulphates, alkyl carboxylates, alkyl sulphosuccinates, alkyl phosphates and alkylbenzene sulphonates and their derivatives
5 having at least one long chain alkyl or alkenyl substituent containing from 8 to 20 carbon atoms. In some instances the additional ionic surfactant may even provide an increase in the activity of the composition.

Especially preferred additional surfactants (component e) are cationic surfactants such as ethoxylated amines and optionally ethoxylated quaternary ammonium salts.

10 Examples of suitable additional cationic surfactants include hexadecyl trimethyl ammonium chloride, coco trimethyl ammonium chloride and N-methyl cocoammonium chloride having a mean ethylene oxide content of 2.

As noted above, the advantages of the formulation of the present invention are fully realised at high concentrations of the agrochemical electrolyte such that, in the absence of the
15 co-surfactant which interacts with the alkylglycoside to form a structured aqueous system (component d), one or more component is not satisfactorily suspended, thereby destroying the homogeneity of the concentration of the components within the formulation.

The agrochemical electrolyte glyphosate is especially suitable for formulation according to the present invention. Thus for example the present invention provides
20 formulations of glyphosate wherein the concentration of glyphosate salt (expressed as glyphosate acid) is greater than 120 g/l and more particularly greater than 240 g/l, and most particularly greater than 300g/l for example about 330 g/l or more.

The present invention provides excellent flexibility in the incorporation of the water-insoluble agrochemical system and it will generally be possible to include a wide range of
25 proportions depending on the combined agrochemical effect it is desired to obtain. Thus the proportions may typically be from 150 parts by weight of agrochemical electrolyte to 1 part by weight of water-insoluble agrochemical system through to 1 part by weight of agrochemical electrolyte to 4 parts by weight of water-insoluble agrochemical system. The upper limit of the content of the water-insoluble agrochemical system is determined only by
30 the proportion that can be effectively suspended and we have found for example that up to 500 g/l or more of a water-insoluble herbicide may generally be suspended in formulations of the present invention.

The co-surfactant (component d) present in the formulation is preferably from 0.1 parts by weight to 1 part by weight per 1 part by weight of alkylglycoside and most preferably from 0.2 parts by weight to 0.8 parts by weight of co-surfactant per 1 part by weight of alkylglycoside.

5 The proportion of additional ionic surfactant (component e) is preferably from 0 to 1 part by weight per 1 part by weight alkylglycoside and most preferably from 0.1 parts by weight to 0.3 parts by weight ionic surfactant per 1 part alkylglycoside. As noted above, a proportion of the additional ionic surfactant may initially be present as a dispersing agent in a millbase of a water-insoluble agrochemical.

10 In general, it is preferred that the total proportion of alkoxyated surfactant present (either as component (e) or as a dispersing agent for the water-insoluble agrochemical) will be below the concentration which would undergo phase separation in the absence of the structuring provided by the co-surfactant (d).

15 The proportion by weight of the total adjuvant or structuring system (i.e. components (c) (d) and (e) if used) to the agrochemical electrolyte is preferably from 4:1 to 1:10 and especially from 1:1 to 1:4.

20 Other additives, humectants or additional adjuvants may also be present in compositions of the present invention. Examples include anti-freeze agents such as ethylene glycol, urea and propylene glycol; dyes; polymers; dispersants; rheological agents; and anti-foam agents such as silicone based agents. If any such additional component, whether a liquid or an insoluble solid, itself has a tendency to phase separate or settle from the composition, the structured phase provided by the present invention will additionally serve to keep such additional component homogeneously distributed throughout the formulation.

25 Compositions of the present invention provide adjuvant enhancement for the active agrochemicals concerned or increase the effectiveness of the adjuvant if the agrochemical electrolyte is an agrochemical enhancer such as ammonium sulphate. Thus formulations of the invention wherein the agrochemical electrolyte is a herbicide, and in particular when the herbicide is glyphosate, are active against a broad range of weed species including monocotyledonous and dicotyledonous species.

30 Thus according to a further aspect of the present invention wherein the agrochemical electrolyte is a herbicide, there is provided a process of severely damaging or killing

unwanted plants which comprises applying to the plants a herbicidally effective amount of a composition of the present invention.

The rate of application of the composition of the invention will depend on a number of factors including, for example, the active ingredients chosen for use, the identity of the plants whose growth is to be inhibited and the formulations selected for use and whether the compound is to be applied for foliage or root uptake. As a general guide, however, an application rate of from 0.001 to 20 kilograms per hectare is suitable while from 0.025 to 10 kilograms per hectare may be preferred.

We have found that the development of a structured aqueous phase and a homogeneous dispersion which gives a uniform distribution in respect of all the components within the formulation, is not critically dependent on the method of preparation of the formulation. It is preferred however that structuring of the system does not take place (i.e. the alkylglycoside and co-surfactant (d) are not brought together) until all the other components, and in particular the water-insoluble system, are effectively dispersed. Whilst it would be possible to add the alkylglycoside to all the other components, including the co-surfactant (d), it is normally simpler to admix all the components apart from the co-surfactant (d) which is only added once an effective dispersion has been obtained. It will be appreciated that before structuring takes place the formulation is relatively free-flowing so that for example the millbase of an insoluble herbicide is readily dispersed. Once structuring takes place, the dispersion is held in stable suspension.

Thus according to a further aspect of the present invention there is provided a method for forming an aqueous agrochemical concentrate formulation which comprises bringing into admixture an aqueous dispersion of

- a) an agrochemical electrolyte
- b) a water-insoluble agrochemical system and
- c) an alkylglycoside and optionally
- (e) an ionic surfactant

and thereafter adding

- d) a co-surfactant which interacts with the alkylglycoside to form a structured aqueous system.

It is a particular advantage of the method of the present invention that the structuring of the system can be accomplished using a low shear mixer to incorporate the co-surfactant.

Thus effective dispersion can typically be achieved using a simple paddle stirrer. In contrast, prior art systems that use a water-swellaable clay and/or polysaccharide gels, require high-shear mixing to disperse either the millbase into a pre-structured system or the clays / polysaccharides (unswollen or pre-swelled) into the millbase. Factors such as this add considerably to the cost of preparing a formulation on a commercial scale. Furthermore, we have found that preferred ionic surfactants such as ARQUAD 16-29 which would otherwise improve the performance of the electrolyte formulation may themselves be incompatible with water-swellaable clays resulting in an unstable formulation.

The order of addition of components (a), (b) and (c) (and (e) if used) is not important provided that structuring of the system takes place once effective dispersion has been achieved.

In general, we have not encountered significant problems in diluting the formulation of the present invention ready for agrochemical use, although excessively viscous or excessively structured compositions may require care to ensure that the concentrate has been effectively dispersed in the water of dilution before use.

The invention is illustrated by the following Examples in which all parts and percentages are by weight unless otherwise stated. The description of commercially available surfactants is given below.

AGRIMUL PG 2067 is a 70 %w/w solution of alkylpolyglycoside of formula (I) above wherein n is an average of 1.7 and R⁵ is a mixture of octyl (45%) and decyl (55%).

AGRIMUL is a trademark of Henkel.

ARQUAD 16-29 is a 29% by weight solution of hexadecyl trimethyl ammonium chloride in water. ARQUAD is a trademark of Akzo Nobel.

TETRONIC 1307 is an ethoxylated / propoxylated diamine with 70% ethylene oxide and a molecular weight of 18,000. Tetronic is a trademark of BASF.

BENTOPHARM B20 is a bentonite clay. Bentopharm is a trademark of Bromhead and Dennison

KELZAN M is a xanthum gum. Kelzan is a trademark of Monsanto.

SYNPERONIC L2 is an ethoxylated lauryl alcohol having a mean degree of ethoxylation of 2. SYNPERONIC is a trademark of Imperial Chemical Industries.

EXAMPLE 1

A composition according to the present invention was prepared as follows:-

To an aqueous solution of paraquat dichloride was added AGRIMUL PG 2067 and makeup water with mixing. Once a homogenous solution was obtained, diuron millbase containing ARQUAD 16-29 as dispersant was added with mixing. A homogeneous dispersion was readily obtained and thereafter octanol was added with mixing to provide a structured system.

The proportions of the components in the final composition were as follows:-

| | |
|---|------------|
| Example 1 | |
| Paraquat dichloride (expressed as paraquat ion) | 150 g/l |
| Diuron | 150 g/l |
| ARQUAD 16-29 (expressed as the active surfactant) | 15 g/l |
| AGRIMUL PG2067 (expressed as the active surfactant) | 105 g/l |
| Octanol | 30 g/l |
| Water | to 1 litre |

The resultant structured composition was tested for physical stability at -5, 25 & 40°C respectively and remained stable under all these conditions when observations were discontinued after 15 weeks.

EXAMPLE 2

The procedure of Example 1 was followed to give the following composition:

| | |
|--|------------|
| Example 2 | |
| Glyphosate trimesium (expressed as glyphosate acid) | 200 g/l |
| Diuron | 200 g/l |
| ARQUAD 16-29 added in the diuron millbase (expressed as the active surfactant) | 20 g/l |
| AGRIMUL PG2067 (expressed as the active surfactant) | 98 g/l |
| Octanol | 28 g/l |
| Water | to 1 litre |

The resultant structured composition was tested for physical stability at -5, 25 & 40°C respectively and remained stable under all these conditions when observations were discontinued after 14 weeks.

COMPARISON 1

5 This comparison illustrates that conventional diuron dispersions may be structured using a KELZAN/BENTOPHARM suspending system but can lose stability in the presence of an agrochemical electrolyte. The diuron millbase contained TETRONIC 1307 as a dispersant which is compatible with the KELZAN/BENTOPHARM suspending system. . It was found that a high-shear stirrer was necessary to provide an effective dispersion of the
10 KELZAN/BENTOPHARM suspending system.

| | |
|---|------------|
| Comparison 1A | |
| Diuron | 150 g/l |
| TETRONIC 1307 added in the diuron millbase (expressed as the active surfactant) | 15 g/l |
| BENTOPHARM B20 (10% in water - expressed as Bentonite clay) | 15g/l |
| KELZAN M (2% in water - expressed as xanthum gum) | 2 g/l |
| Water | to 1 litre |

The resultant composition was tested for physical stability at -5, 25 & 40°C respectively. The composition froze at -5°C but remained stable at 25 and 40°C when observations were discontinued after 5 weeks.

| | |
|---|------------|
| Comparison 1B | |
| Paraquat dichloride (expressed as paraquat ion) | 150 g/l |
| Diuron | 150 g/l |
| TETRONIC 1307 added in the diuron millbase (expressed as the active surfactant) | 15 g/l |
| BENTOPHARM B20 (10% in water - expressed as bentonite clay)) | 15g/l |
| KELZAN M (2% in water - expressed as xanthum gum) | 2 g/l |
| Water | to 1 litre |

The resultant composition was tested for physical stability at -5, 25 & 40°C respectively. Compositions were found to be unstable at all temperatures after 4 days.

COMPARISON 2

This comparison illustrates that a composition equivalent to that of Example 2 but using a KELZAN/BENTOPHARM suspending system in place of that of the present invention is unstable after only 1 week. Furthermore, even in the absence of the electrolyte glyphosate trimesium, the composition is unstable, it is believed as a result of an adverse interaction of the preferred ARQUAD 16-29 dispersant and the KELZAN/BENTOPHARM suspending system.

| Comparison 2A | | Comparison 2B | |
|---|---------|---|---------|
| Glyphosate trimesium (expressed as glyphosate acid) | 200 g/l | | |
| Diuron | 200 g/l | Diuron | 200 g/l |
| ARQUAD 16-29 (expressed as the active surfactant) | 20 g/l | ARQUAD 16-29 (expressed as the active surfactant) | 20 g/l |
| BENTOPHARM B20 (10% in water - expressed as bentonite clay) | 15 g/l | BENTOPHARM B20 (10% in water - expressed as bentonite clay) | 15 g/l |

| | | | |
|--|------------|--|---------------|
| KELZAN M (2% in water - expressed as xanthum gum) | 2 g/l | KELZAN M (2% in water - expressed as xanthum gum) | 2 g/l |
| Water | to 1 litre | Water | to 1 litre |

Comparisons 2A and 2B were found to be unstable after between 4 days and 1 week at 25 and 40°C.

EXAMPLE 3

- 5 This Example illustrates the beneficial effect of adding a quaternary ammonium salt (hexadecyl trimethyl ammonium chloride) as an additional ionic surfactant (component (e)). Formulations were prepared using the general method of Example 1 according to the following composition:-

| | |
|--|------------|
| Example 3 | |
| Glyphosate trimesium (expressed as glyphosate acid) | 350 g/l |
| Diuron | 100 g/l |
| ARQUAD 16-29 added in the diuron millbase (expressed as the active surfactant) | 10 g/l |
| Additional ARQUAD 16-29 (expressed as the active surfactant) | X g/l |
| AGRIMUL PG2067 (expressed as the active surfactant) | 35 g/l |
| Octanol | 10 g/l |
| Water | to 1 litre |

- 10 Conditions were deliberately chosen to be testing with a high concentration of glyphosate trimesium and a concentration of alkylglycoside well below that considered as optimum. The quantity of ARQUAD 16-29 added in the diuron millbase was equivalent to 10 g/l. Under these exceptional conditions, the composition failed the stability test when no additional ARQUAD 16-29 was added (X in the above Table is 0). However as additional
15 quantities of ARQUAD 16-29 were added (20, 30 and 40 g/l respectively) the stability of the composition progressively improved. This improvement is illustrated in the following Table which shows the stability of the composition as a function of the added ARQUAD 16-29

(X g/l in the above Table). Stability was measured after 3.5 weeks at -5, 25 and 40°C respectively.

| X (g/l) | Temperature | | |
|---------|------------------------------|-------------------------|-------------------------|
| | -5 °C | 25 °C | 40 °C |
| 0 | Top separation only | Catastrophic separation | Catastrophic separation |
| 20 | Partial separation | Trace of top separation | Trace of top separation |
| 30 | Top separation and streaking | Top separation only | Homogeneous |
| 40 | Homogeneous | Homogeneous | Homogeneous |

EXAMPLE 4

This Example illustrates the use of SYNPERONIC L2 as co-surfactant (component d). The following composition was prepared using the general method of Example 1:-

| Example 4 | |
|--|------------|
| Glyphosate trimesium (expressed as glyphosate acid) | 200 g/l |
| Diuron | 200 g/l |
| ARQUAD 16-29 added in the diuron millbase (expressed as the active surfactant) | 20 g/l |
| AGRIMUL PG2067 (expressed as the active surfactant) | 63 g/l |
| SYNPERONIC L2 | 45 g/l |
| Water | to 1 litre |

- 10 The resultant structured composition was tested for physical stability at -5, 25 & 40°C respectively and remained stable under all these conditions when observations were discontinued after 4 weeks.

CLAIMS

1. An aqueous agrochemical concentrate formulation comprising
- a) an agrochemical electrolyte
 - b) a water-insoluble agrochemical system
 - 5 c) an alkylglycoside
 - d) a co-surfactant which interacts with the alkylglycoside to form a structured aqueous system.
2. A concentrate according to claim 1 or claim 2 wherein the co-surfactant (d) is
- i) a linear or branched chain aliphatic or aromatic alcohol or
 - 10 ii) an alcohol alkoxylate or ester alkoxylate or alkyl phenol alkoxylate
 - iii) a glyceryl alkyl or alkenyl ester or
 - (iv) a sorbitan alkyl or alkenyl ester.
3. A concentrate according to claim 2 wherein the linear or branched chain alcohol (i) is a primary or secondary, linear or branched alkyl or alkenyl alcohol containing from 5 to 20 carbon atoms or is an alkyl- or alkenyl-substituted aromatic alcohol containing from 5 to 20 linear or branched alkyl carbon atoms or wherein
- the alcohol or ester or alkyl phenol alkoxylate (ii) is an alkoxylated $C_8 - C_{22}$ primary or secondary, linear or branched chain alcohol, an alkoxylated $C_8 - C_{22}$ alkyl phenol or an alkoxylated $C_8 - C_{22}$ carboxylic acid each containing from 1-3 $C_2 - C_4$ alkoxy groups
- or wherein
- the glyceryl alkyl or alkenyl ester (iii) is a monoester of a $C_8 - C_{22}$ carboxylic acid with glycerol
- or wherein
- the sorbitan alkyl or alkenyl ester (iv) is a sorbitan ester having from 8 to 22 carbon atoms in the ester group.
4. A composition according to claim 3 wherein the co-surfactant is pentanol, hexanol, octanol, octan-2-ol, decanol and their branched chain or mixture of branched chain equivalents, oleyl alcohol, 2-ethyl-1-hexanol, an ethoxylated lauryl alcohol having a mean ethylene oxide content of 2, an ethoxylated octyl phenol having a mean degree of ethoxylation of 3, glyceryl monolaurate and sorbitan monolaurate.

5. A composition according to any of the preceding claims wherein the agrochemical electrolyte is selected from salts of glyphosate, fomesafen, glufosinate, paraquat and bentazone or is ammonium sulphate
6. A composition according to any of the preceding claims wherein the water-insoluble agrochemical system contains an agrochemical active ingredient.
7. A composition according to claim 6 wherein the water-insoluble system is a water-insoluble herbicide as herein defined.
8. A composition according to claim 7 wherein the water-insoluble herbicide is diuron, linuron, sulfometuron, chlorsulphuron, metsulfuron, chlorimuron, atrazine or simazine.
9. A concentrate according to any of the preceding claims wherein the composition additionally contains an ionic surfactant which is a cationic, anionic or amphoteric surfactant.
10. A concentrate according to claim 9 wherein the composition additionally contains a cationic surfactant having at least one linear or branched long chain alkyl or alkenyl or alkyl aryl substituent containing from 8 to 20 alkyl or alkenyl carbon atoms and a mean ethylene oxide content of from 0 to 20 which is an optionally ethoxylated amine, quaternary ammonium salt or amine oxide or wherein the composition additionally contains an anionic surfactant having at least one long chain alkyl or alkenyl substituent containing from 8 to 20 carbon atoms which is an alkyl sulphate, alkyl carboxylate, alkyl sulphosuccinate, alkyl phosphate or alkylbenzene sulphonate and derivatives thereof.
11. A concentrate according to any of the preceding claims wherein the water-insoluble agrochemical system is present in a proportion of from 150 parts by weight of agrochemical electrolyte to 1 part by weight of water-insoluble agrochemical system to 1 part by weight of agrochemical electrolyte to 4 parts by weight of water-insoluble agrochemical system.
12. A concentrate according to any of the preceding claims wherein the proportion of the co-surfactant is from 0.1 parts by weight to 1 part by weight per 1 part by weight of alkylglycoside.

13. A concentrate according to claim 9 wherein the proportion of additional ionic surfactant is from 0 parts by weight to 1 parts by weight ionic surfactant per 1 part alkylglycoside.
14. A concentrate according to any of the preceding claims wherein the proportion by weight of the total of the alkylglycoside, the cosurfactant and additional ionic surfactant, if used, to the agrochemical electrolyte is from 4:1 to 1:10.
15. A process for severely damaging or killing unwanted plants which comprises applying to the plants a herbicidally effective amount of a composition according to any of the preceding claims wherein the agrochemical electrolyte is a herbicide.
16. A process for the preparation of a composition according to any of claims 1 to 14 which comprises bringing into admixture an aqueous dispersion of
- a) an agrochemical electrolyte
 - b) a water-insoluble agrochemical system and
 - c) an alkylglycoside and optionally
 - (e) an ionic surfactant
- and thereafter adding
- d) a co-surfactant which interacts with the alkylglycoside to form a structured aqueous system.

Docket No.
PPD 50341/UST

DECLARATION FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter, which is claimed and for which a patent is sought on the invention entitled:

AGROCHEMICAL FORMULATION

the specification of which

 is attached hereto
 X was filed on 20 August 2001 as United States
Application Number 09/913,856 and was amended on (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information, which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

| Prior Foreign Application(s) | | | Priority Claimed | |
|------------------------------|----------------|------------------|------------------|----|
| Number | Country | Filing Date | Yes | No |
| 9904012.3 | United Kingdom | 22 February 1999 | X | |
| | | | | |

I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional application(s) listed below.

| Application Number | Filing Date |
|--------------------|-------------|
| | |
| | |

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT International Application(s) designating the United States of America listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application(s) and the national or PCT international filing date of this application.

| Application Number | Filing Date | Status |
|--------------------|-----------------|--------|
| PCT/GB00/00249 | 28 January 2000 | |
| | | |

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: **Michael John Bean *et al.***

International Application No. **PCT/GB00/00249**

International Filing Date: **28 January 2000**

US Application No. **09/913,856**

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For: **AGROCHEMICAL FORMULATION**

Attorney Docket No: 109846.286

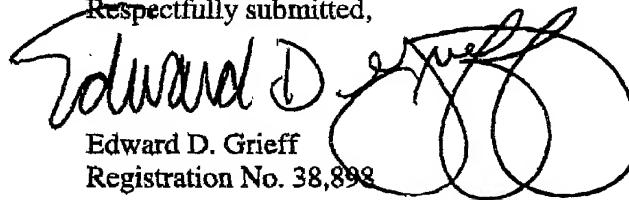
Assistant Commissioner of Patents
Washington, DC 20231

Associate Power of Attorney

Please recognize the following person as an Associate Attorney in the above application:

Tiffany Mendez, Esq.
Registration No. P-50,160
Hale and Dorr LLP
300 Park Avenue
New York, NY 10022

Respectfully submitted,


Edward D. Grieff
Registration No. 38,898

Date: November 6, 2001

Hale and Dorr LLP
1455 Pennsylvania Avenue, NW
Washington, DC 20004
Phone: 202-942-8400

DECLARATION FOR PATENT APPLICATION

Page 3 of 3

Scott M Alter, Reg No 32,879; ~~Hollie L Baker, Reg No 31,321; Barbara A Barakat, Reg No 32,190;~~
 Steven D Barrett, Reg No 40,903; ~~Michael J Bevilacqua, Reg No 31,091; Sally Bryne, Reg No 40,545;~~
 David L Cavanaugh, Reg No 36,476; ~~David J Cervený, Reg No 44,600; Nancy Chiu Phd, Reg No~~
~~43,545; Michael A Diener, Reg No 37,122; Peter M Dichiará, Reg No 38,005; Gregory S Discher, Reg~~
~~No 42,488;~~
 Irañ H Donner, Reg No 35,120; ~~Richard A Goldenberg, Reg No 38,895; Edward D Grieff, Reg No~~
~~38,898; Joseph F Haag, Reg No 42,612; Wendy A Haller, Reg No. 35,177; Wayne M Kennard, Reg~~
~~No 30,271; Wayne A Keown Phd, Reg No 33,923; Ann-Louise Kerner Phd, Reg No 33,523;~~
 Anthony Kahng, Reg No 42,704; ~~Janice M Klunder Phd, Reg No 41,121;~~
 James B Lampert, Reg No 24,546; ~~Ayla A Lari, Reg No 43,739; Nels Lippert, Reg No 25,888;~~
 Maria L Maebius, Reg No 42,967; ~~Dominic Massa, Reg No 44,905; Robert Molssac Phd, Reg No~~
~~46,918;~~
 Cynthia K Nicholson, Reg No 36,880; ~~Keum J Park, Reg No 42,059;~~
 Tamara Pertmer Phd, Reg No P47,856; ~~Jason A Reyes, Reg No 41,513;~~
 Gretchen A Rice Phd, Reg No 37,429; ~~MaryRose Scozzafava, Reg No 36,268;~~
 Donald R Steinberg, Reg No 37,241; ~~Victor F Souto, Reg No 33,458; Colleen Superko, Reg No~~
~~39,850;~~
 C Hall Swaim, Reg No 22,838; ~~Leonid Thenor, Reg No 39,397; Michael J Twomey, Reg No 38,349;~~
 Rajesh Vallabh, Reg No 35,761; ~~Gary A Walpert, Reg No 26,098; M Lisa Wilson Phd, Reg No 34,045;~~
 Henry N Wixon, Reg No 32,073; ~~Luke Yeh, Reg No 43,296.~~

Address all telephone calls to Hale and Dorr LLP, at telephone number (202) 942-8400.

Address all correspondence to:

Hale and Dorr LLP
Counsellors At Law
The Willard Office Building
1455 Pennsylvania Avenue
Washington, DC 20004-1008

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor (given name, family name) Michael John BEAN

Inventor's signature [Signature]

Date 16th August 2001

Residence Jealott's Hill, Bracknell, United Kingdom GBX British

Post Office Address Syngenta Limited, Jealott's Hill Research Centre, Bracknell, Berkshire, RG42 6ET, United Kingdom

Full name of sole or first inventor (given name, family name) Julia Lynne RAMSAY (née CUTLER)

Inventor's signature Julia Lynne Ramsay

Date 9th August 2001

Residence Jealott's Hill, Bracknell, United Kingdom GBX British

Post Office Address Syngenta Limited, Jealott's Hill Research Centre, Bracknell, Berkshire, RG42 6ET, United Kingdom